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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/854,243	05/11/2001	Gianfranco Bilardi	YOR920010438US1	7879

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IBM CORPORATION
INTELLECTUAL PROPERTY LAW DEPT.
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EXAMINER

COLEMAN, ERIC

ART UNIT	PAPER NUMBER
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2183

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DATE MAILED: 05/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/854,243

Applicant(s)

BILARDI ET AL.

Examiner

Eric Coleman

Art Unit

2183

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. Claim 11 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
2. The scope of meaning of claim 11 is unclear because the claim does not end in a period.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1,8,9 is rejected under 35 U.S.C. 102(e) as being anticipated by Benkual (patent No. 6,671,747).
5. Benkual taught the invention as claimed including a data processing ("DP") system comprising:

a) Means and method for determining if the number of outstanding write instructions from the processor and targeted to a designated region of memory was above a threshold (e.g., see col. 18, line 58-col. 20, line 9, and col. 6, line 61-col. 7, line 10); and

b) Means method for issuing a fence instruction designating the region of memory, where not further instructions are issued from the processor until the number of outstanding writes targeted to the designated region is below the threshold (e.g., see col. 17, lines 6-40).

6. Benkual taught (claims 8,9) counters used in the determination of the write threshold (e.g., see col. 17, line 63-col. 18, line 26).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 2-3, are rejected under 35 U.S.C. 103(a) as being unpatentable over Benkual (patent No. 6,671,747) in view of Burger (Patent No. 6,006,325).

9. Benkual taught the invention as claimed including a data processing ("DP") system comprising:

a) Means and method for determining if the number of outstanding write instructions from the processor and targeted to a designated region of memory was above a threshold (e.g., see col. 18, line 58-col. 20, line 9, and col. 6, line 61-col. 7, line 10);

b) Means method for issuing a fence instruction designating the region of memory, where not further instructions are issued from the processor until the number of outstanding writes targeted to the designated region is below the threshold (e.g., see col. 17, lines 6-40);

10. Benkual did not expressly detail (claim 2) that an issue unit performed the threshold determination or using counters in the threshold determination. Burger however taught (e.g., see col. 5, lines 30-66) issue unit means for that performed the determination of the threshold used in performing a fence instruction. As per claim 3, Benkual taught counters used in the determination of the write threshold (e.g., see col. 17, line 63-col. 18, line 26).

11. It would have been obvious to one of ordinary skill in the DP art to combine the teachings of Benkual and Burger. One of ordinary skill would have been motivated to utilized the issue means for determination of the threshold for the fence instruction at least to allow the fence operation in a processor that comprised processors that operated in parallel.

12. Claims 4,5, are rejected under 35 U.S.C. 103(a) as being unpatentable over Burger (Patent No. 6,006,325).

13. Burger taught the invention substantially as claimed including a data processing ("DP") system comprising:

14. As to the memory limitation of claim 4, Burger taught a memory (120) (e.g., see fig. 1). Burger taught the issue means retrieving operand data from memory and

Art Unit: 2183

forwarding and the instruction to the execution unit for execution (e.g., see col. 3, lines 31-65). Although Burger did not expressly detail (claims 4,5) that the retrieved instruction comprised opcode and target location Burger taught branch instructions and branch target addresses (e.g., see col. 6, lines 6-21). Therefore it would have been obvious to one of ordinary skill in the art that the branch instructions in the Burger system comprised opcode and target location. One of ordinary skill would have been motivated to use an opcode in the branch instruction along with the branch target and operand data at least to indicate the branch type operation to the execution unit so that the intended type of branch would have been performed using the target location.

15. Claims 6,7,10,11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burger in view of Benkual (patent No. 6,671,747).

16. Burger taught the invention substantially as claimed including a data processing ("DP") system comprising:

17. As to the memory limitation, Burger taught a memory (120) (e.g., see fig. 1). Burger taught the issue means retrieving operand data from memory and forwarding and the instruction to the execution unit for execution (e.g., see col. 3, lines 31-65). Although Burger did not expressly detail (claims 6,7,10,11) that the retrieved instruction comprised opcode and target location Burger taught branch instructions and branch target addresses (e.g., see col. 6, lines 6-21). Therefore it would have been obvious to one of ordinary skill in the art that the branch instructions in the Burger system comprised opcode and target location. One of ordinary skill would have been motivated

Art Unit: 2183

to use an opcode in the branch instruction along with the branch target and operand data at least to indicate the branch type operation to the execution unit so that the intended type of branch would have been performed using the target location.

18. Burger did not expressly detail (claim 6,7) issuing fence instructions designating a region of memory. Benkual however taught means method for issuing a fence instruction designating the region of memory, where not further instructions are issued from the processor until the number of outstanding writes targeted to the designated region is below the threshold (e.g., see col. 17, lines 6-40).

19. It would have been obvious to combine the teachings of Burger and Benkual. One of ordinary skill would have been motivated incorporate the fence instruction that designated a region of memory to allow proper separation of memory portions so that control of writes to plural portions of memory could be proper controlled.

20. Burger taught (claim 7) (e.g., see col. 5, lines 30-66) issue unit means for that performed the determination of the threshold used in performing a fence instruction.

21. As per claim 10,11 Benkual taught counters used in the determination of the write threshold (e.g., see col. 17, line 63-col. 18, line 26).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Harriman (The prior art made of record and not relied upon is considered pertinent to patent No. 6,092,158) disclosed a system for arbitrating between command streams (e.g., see abstract).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Coleman whose telephone number is (703) 305-9674. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Chan can be reached on (703) 305-9712. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

EC



ERIC COLEMAN
PRIMARY EXAMINER

May 3, 2004